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EXAMINER

ZIMMER, MARC S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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1712

7

DATE MAILED: 02/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

mk-7

Office Action Summary

Application No.

09/685,341

Applicant(s)

JENKNER ET AL.

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-38 is/are pending in the application.
- 4a) Of the above claim(s) 31-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s) <u>Z</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

Election/Restrictions

Applicant's election with traverse of claims 23-26 (claims 23 and 24 are generic) in Paper No. 6 of group I is acknowledged.

In spite of the structural and chemical dissimilarities of the surfaces mentioned in claims 25, 27, and 29, claims 27-30 are hereby rejoined because they too are directed to a method of rendering a surface hydrophobic/oleophobic by applying an alcohol solution of a perfluorinated hydrocarbon group-containing polysiloxane.

The Applicants traverse the Examiner's restriction requirement on the ground(s) that each of the claimed methods is connected in the sense that they all employ the same compound to achieve the intended effect. They further contend that no substantial burden is bestowed upon the Examiner insofar as a complete search would only necessitate that a minimal number of additional subclasses be searched. In reality, a comprehensive search of all of the inventions disclosed in claims 23-38 would require surveying many more classes/subclasses than those mentioned in paper no. 5 as only the "primary" class is provided when a restriction requirement is written.

Concerning the first point, although each of the independent claims does, indeed, utilize a related compound, an application may be restricted to one of two or more claimed inventions if they are able to support separate patents and they are independent (MPEP § 806.04 - § 806.04(i)) according to MPEP 803. "Independent" inventions, as defined in MPEP § 802.01 are ones that are disparate in their operation or effect. Clearly, that is the case here hence the requirement is still deemed proper and is, therefore, made FINAL. Claims 31-38 are hereby withdrawn from further

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consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected method, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of the above method claims discloses the application of an "alcoholic" fluoroalkyl-functional group-containing organosiloxane-based composition. The connotation of the word in parenthesis is unclear as there are a plurality of possible interpretations. Either (1) the organosiloxane has alcohol, or silanol, groups or (2) the organosiloxane is dissolved in an alcohol medium. When read in light of the Specification, it seems clear that the second scenario is true. However, it cannot be discounted that the first contrual was the intended meaning. Clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 23-30 essentially provide for a method of rendering a variety of surfaces water- or oil repellant by applying a coating layer of an organopolysiloxane that features perfluoroalkyl substituents. The silicone base is prepared from either of the two compounds portrayed in each of the dependent claims although it is emphasized for the record that these claims are written such that siloxane copolymers that incorporate, in addition to one of the specified compounds, repeat units from a non-fluorinated silane are not expressly excluded. That is, the polymer could also contain silicon atoms bearing, for example, two non-substituted hydrocarbon groups.

Interestingly, each of the method claims includes product by process language wherein the process by which the hydrophobizing/oleophobizing polymer compound is prepared is also outlined. It has been held that "Even though product-by-process claims are limited by and defined by the process, a determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process" In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Accordingly, the process by which said hydrophobizing/oleophobizing polymer compound is synthesized is immaterial to an evaluation of the patentability of the instant invention against the prior art. Therefore, any reference that teaches the use of a polymer that would be derived, at least in part, from one of the fluorinated silanes of claims 23-30 will read on the Applicant's invention if the intended use is the same.

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Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono et al., U.S. Patent # 5,489,328. They disclose a water-repellant agent that may be used to treat a diversity of surfaces including buildings/building materials, mirrors, ceramics, and various glass articles of which glass fibers would be obvious (column 5, lines 14-17). The compounds exhibited in formulas I and II are combined in a weight ratio of between 10/90 and 90/10 (column 4, lines 14-18) after which they are co-hydrolyzed in a water miscible solvent such as a lower alcohol or a cellosolve. (Where Q denotes a divalent ethylene radical, the compound of formula I is equivalent to the first compound shown in each of claims 23, 25, and 27.) According to column 6, line 3, the treating agent is applied in solution form. From Table 1, it is evident that isopropyl alcohol is a preferred medium.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takamizawa et al., U.S. Patent # 4,024,306. They describe the formation of a polymer coating compound from a mixture of organosilicon starting materials including a) an organotrialkoxysilane, b) an orthosilicate, c) a perfluoralkyl-substituted trialkoxysilane, and d) a telechelic hydroxyl group-terminated diorganopolysiloxane. According to column 3, lines 31-36, alcohols may be added to the reactants prior to inducing partial hydrolysis/condensation. The primary objective of the invention was to prepare a coating that will impart high hardness to abrasion-susceptible polymer materials. Nonetheless, they state in column 2, lines 42-45 that increasing the perfluorocarbon content will enhance the oil-repellency and lubricity of the product

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hence one skilled in the art would appreciate that the copolymer may further be utilized for these properties.

Allowable Subject Matter

Claims 28-29 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action. The prior art was silent regarding the treatment of an inorganic filler with a perfluoroalkyl-functionalized organopolysiloxane that has been dissolved in an alcohol medium. An example of a filler-treating process wherein a chemically similar polymer is added to silica as a neat compound is described *vide infra*.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Sunaga et al., JP 09-176622 discloses yet another preparation of a fluorinated polysiloxane treating agent. A solvent mixture comprising water and an alcohol is used both as a reaction medium and a dilutant for the final coating material.

Evans et al., U.S. Patent # 4,529,774 disclose a fluorinated silicone copolymer for treating silaceous fillers. Because the polymers are of low molecular weight, no solvent was needed and the organosilicon compound was added to the filler neat.

There were a number of references that taught the utilization of silane compounds equivalent to those mentioned in the claims as precursors to a water- and oil repellant coating material. However, unlike the method currently disclosed,

claimed method
disclosed
has
solvent
Evans
of
disclosed

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polymerization took place only after the silane was applied to the substrate. See, for example, Kobayashi et al., U.S. Patent # 5,446,115.

The prior art also contained numerous references that disclosed the exploitation of polysiloxanes containing fluorinated hydrocarbon substituents as hydro/oleophobicizing compounds. For instance, Holbrook et al., U.S. Patent # 3,012,006 describe the preparation of a polymer by hydrolyzing compounds represented by the formula,



wherein Y denotes an ether, ester, amine, or amide linkage and R is a divalent alkylene radical. Nonetheless, Holbrook does not render the instant invention obvious insofar as they recommend dissolving the polymer in an ethereal solvent as opposed to an alcohol. Halling, U.S. Patent # 5,442,011, contemplates using fluorocarbon-functionalized siloxane polymers as water/oil repellents but the solvating medium is an aqueous surfactant system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 703-605-1176. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Marc S. Zimmer
AU 1712

February 1, 2002



Robert Dawson
Supervisor, Technology
Technician, 1712